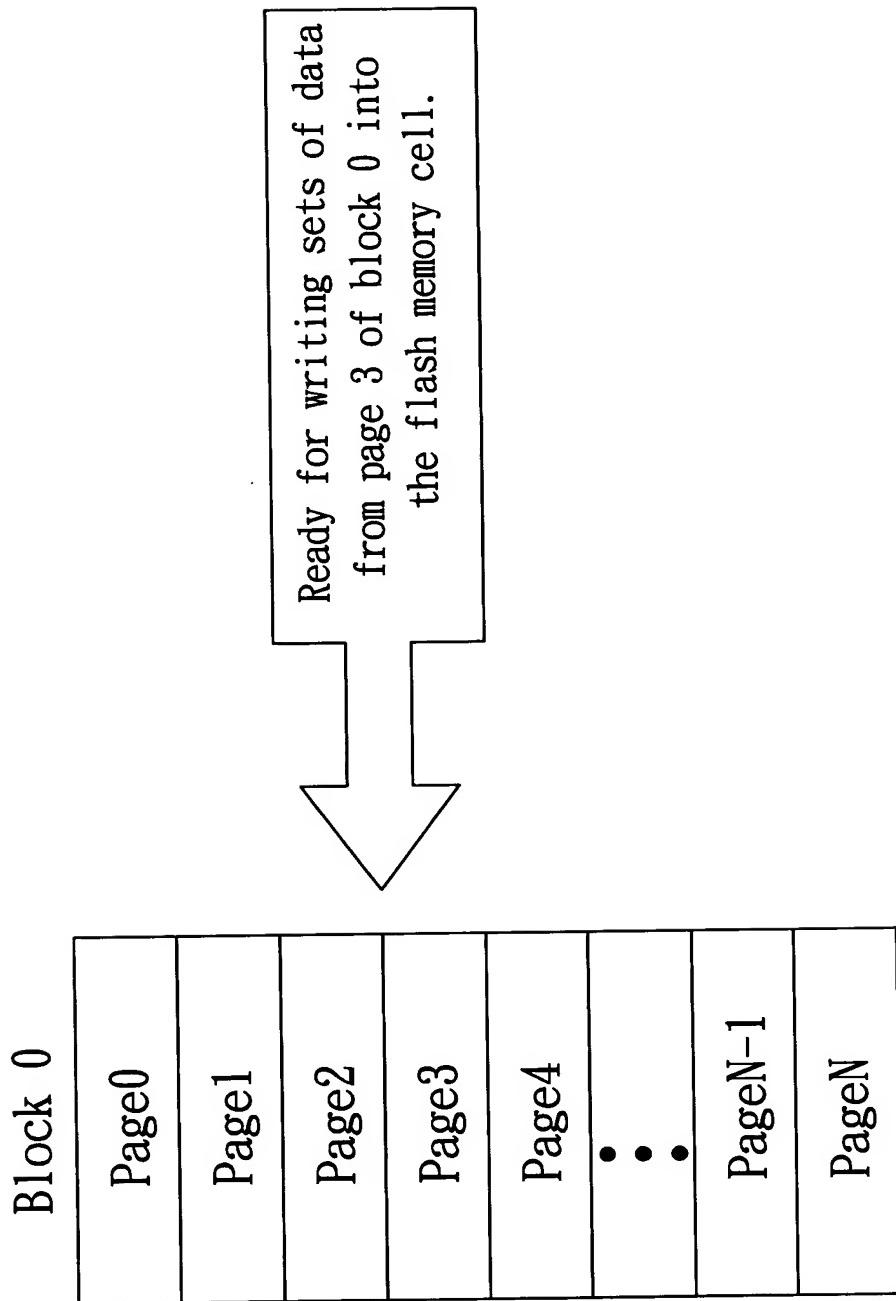
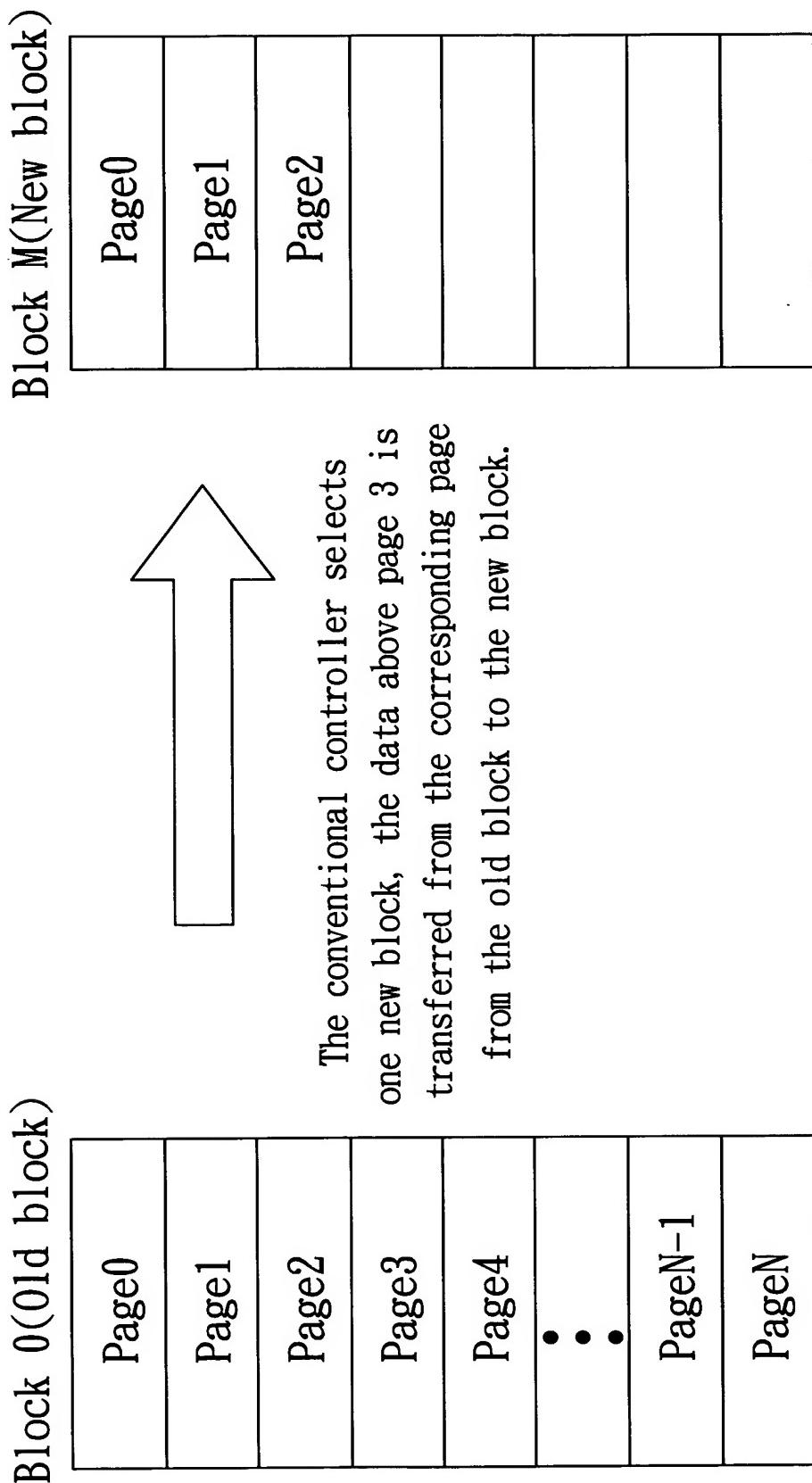


*PRIOR ART*  
*FIG. 1A*



*PRIOR ART*  
*FIG. 1B*



The conventional controller selects one new block, the data above page 3 is transferred from the corresponding page from the old block to the new block.

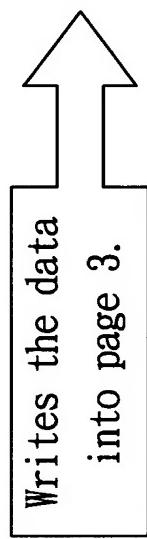
*PRIOR ART*  
*FIG. 1C*

Block 0(Old block)

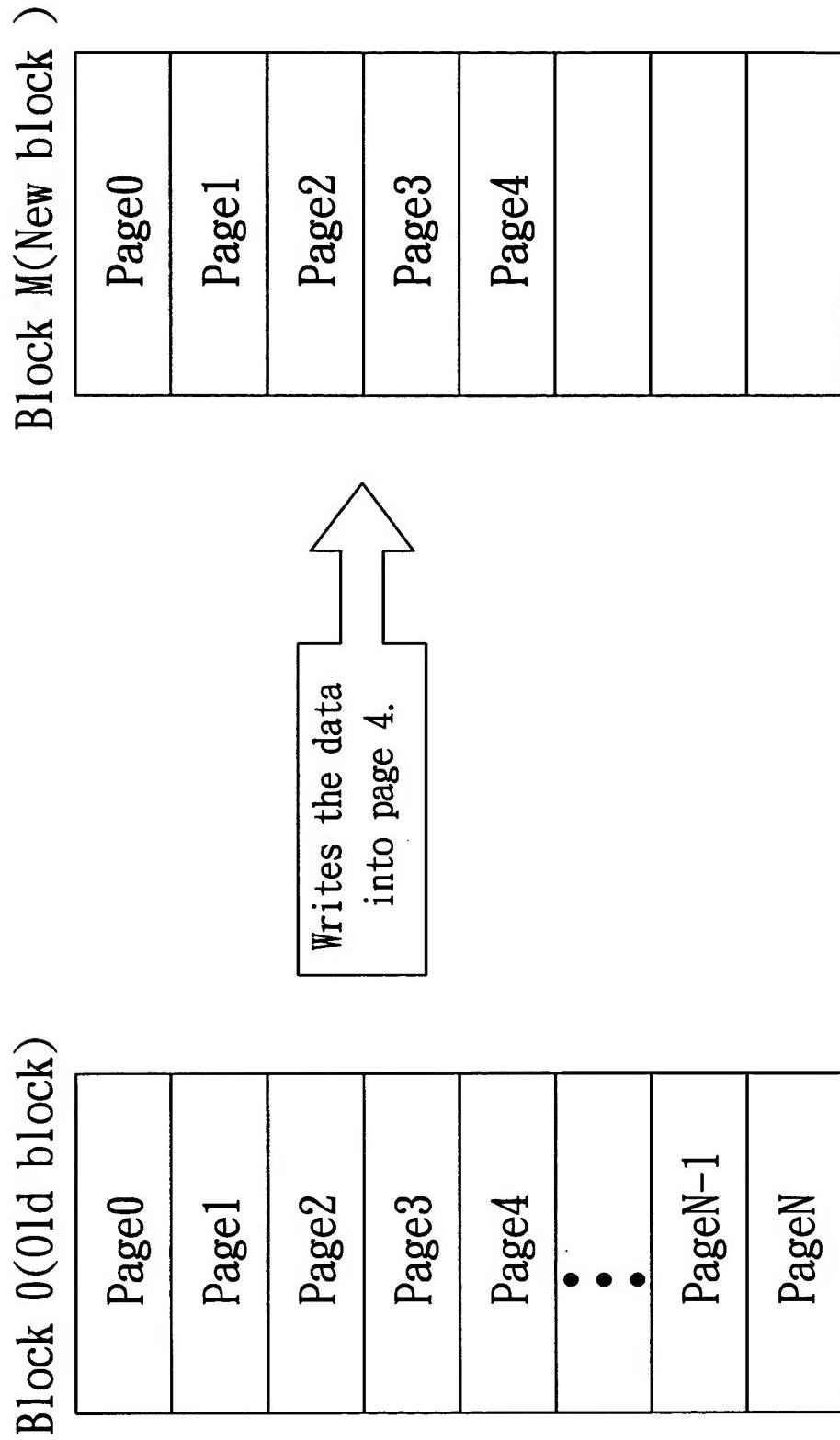
Page0
Page1
Page2
Page3
Page4
•
PageN-1
PageN

Block M(New block)

Page0
Page1
Page2
Page3



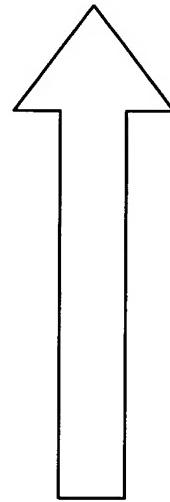
*PRIOR ART*  
*FIG. 1D*



Block 0(Old block)

Page0
Page1
Page2
Page3
Page4
•
•
•
PageN-1
PageN

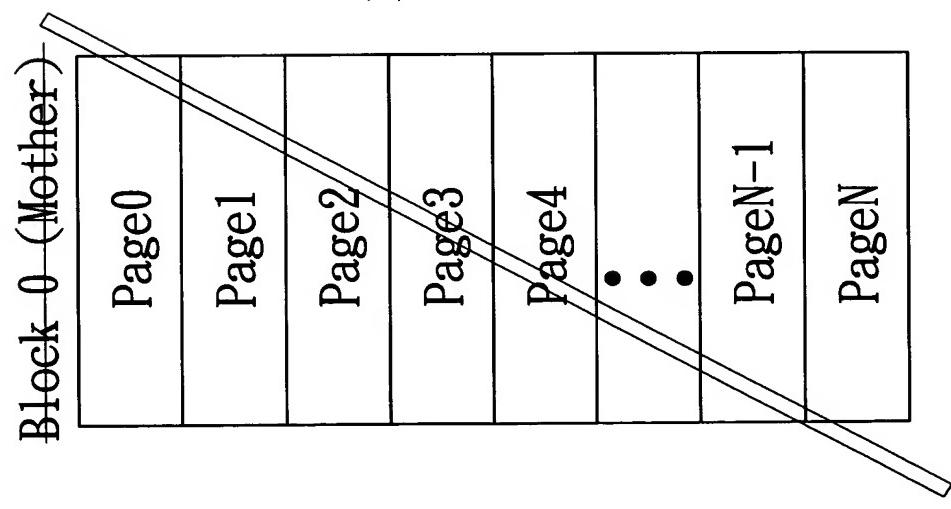
Transfers the block below page 4  
from the old block to the new block.



Block M(New block)

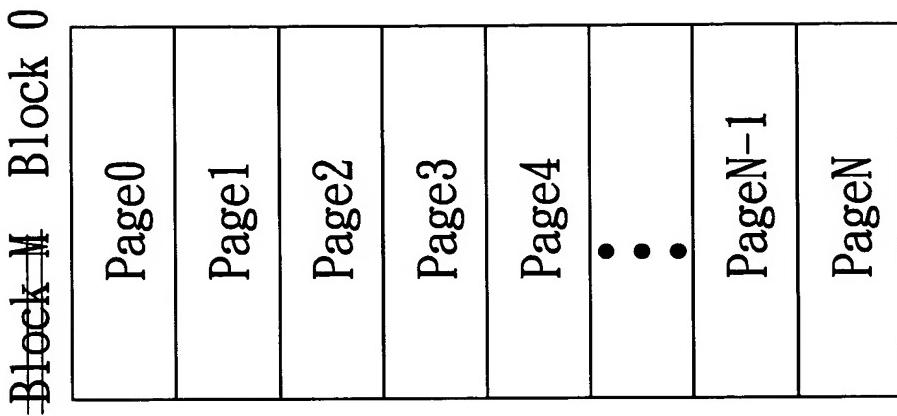
Page0
Page1
Page2
Page3
Page4
•
•
•
PageN-1
PageN

PRIOR ART  
FIG. 1E



**Block M (Child)**

Erases the old block and allows the new block replace the old block 0.



*PRIORITY ART  
FIG. 1F*

Block 0

Page0
Page1
Page2
Page3
Page4
•
PageN-1
PageN

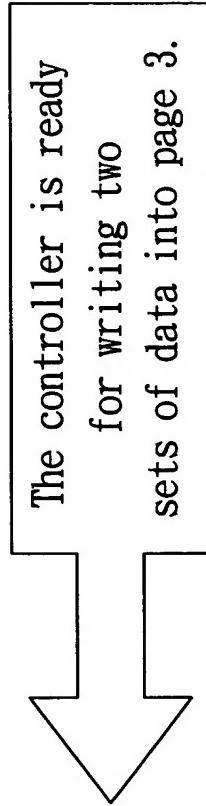
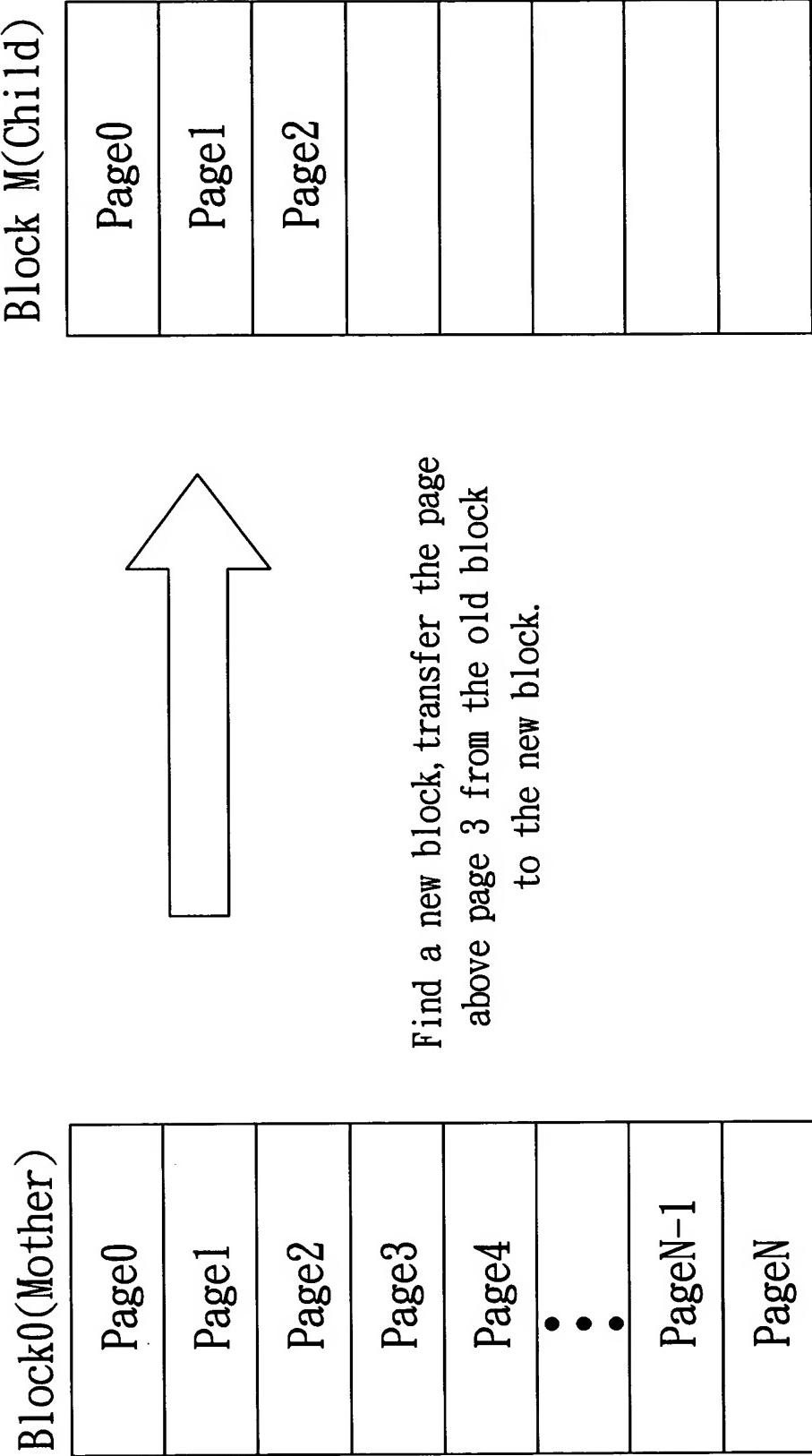
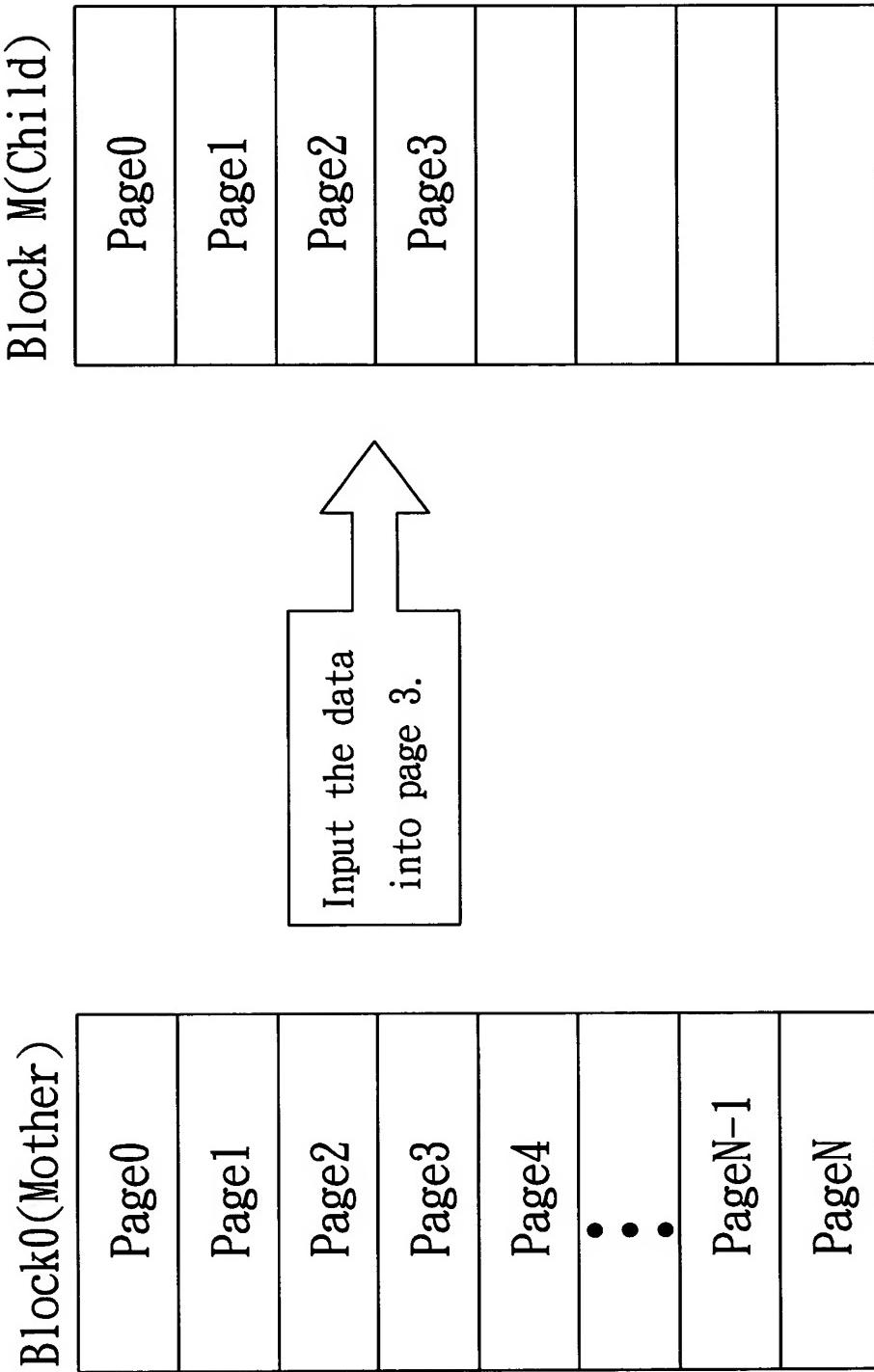


FIG. 2A

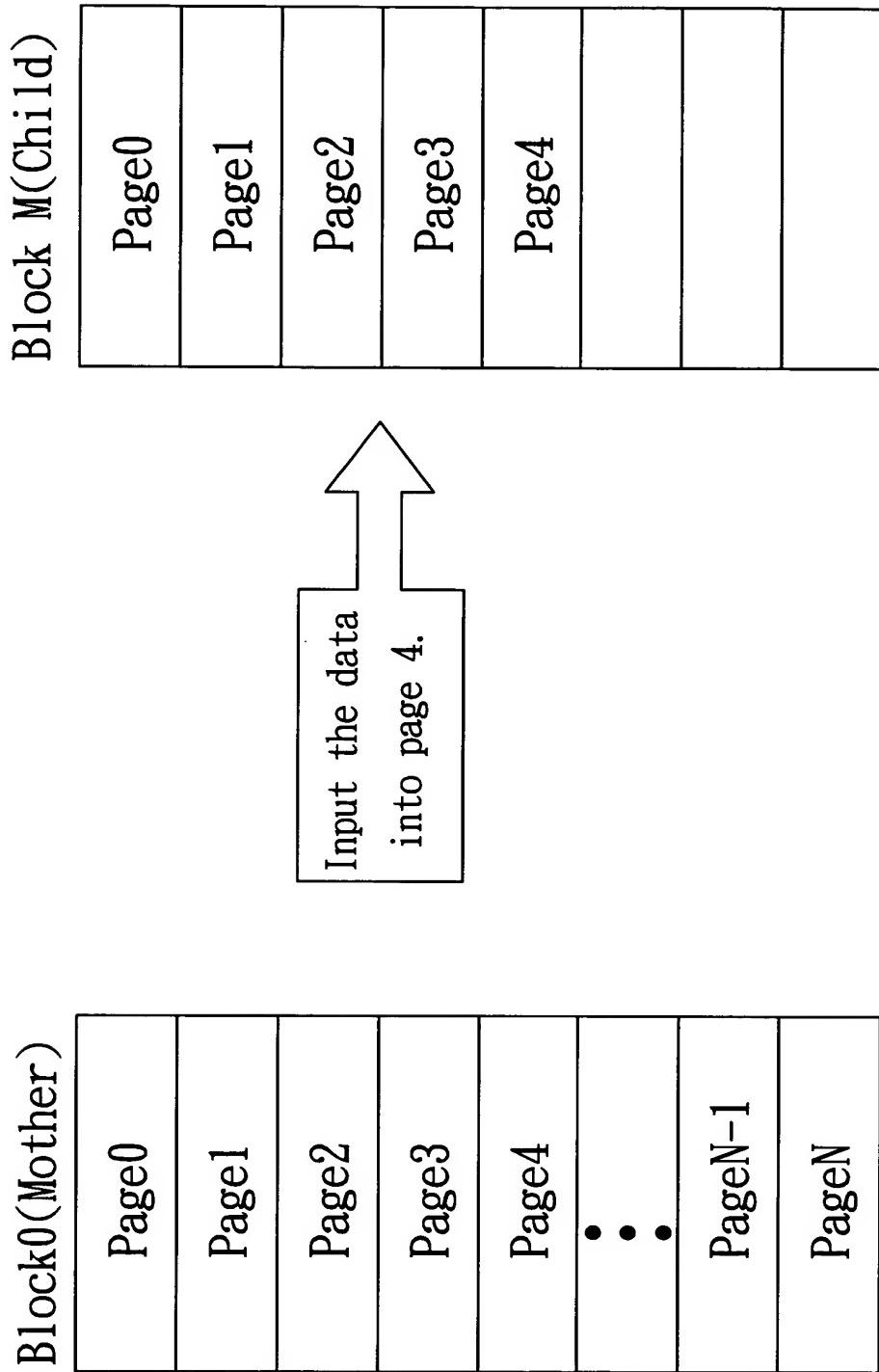
*FIG. 2B*



*FIG. 2C*



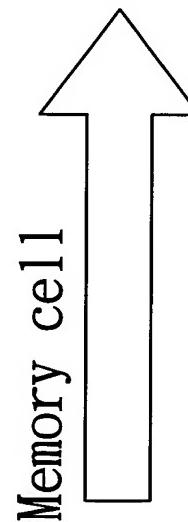
*FIG. 2D*



Block0(Mother)

Page0
Page1
Page2
Page3
Page4
•
PageN-1
PageN

Mother block and child block standby  
for the next action into the  
flash memory cell.



Block M(Child)

Page0
Page1
Page2
Page3
Page4
•

FIG. 2E

Block0(Mother)

Page0
Page1
Page2
Page3
Page4
•
PageN-1
PageN

Next writing action  
occurs and continue writing data  
into page 5.

Block M(Child)

Page0
Page1
Page2
Page3
Page4
Page5

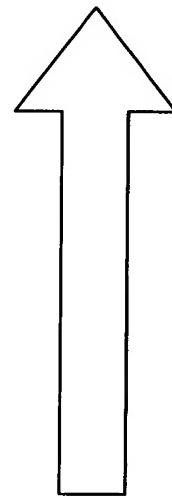
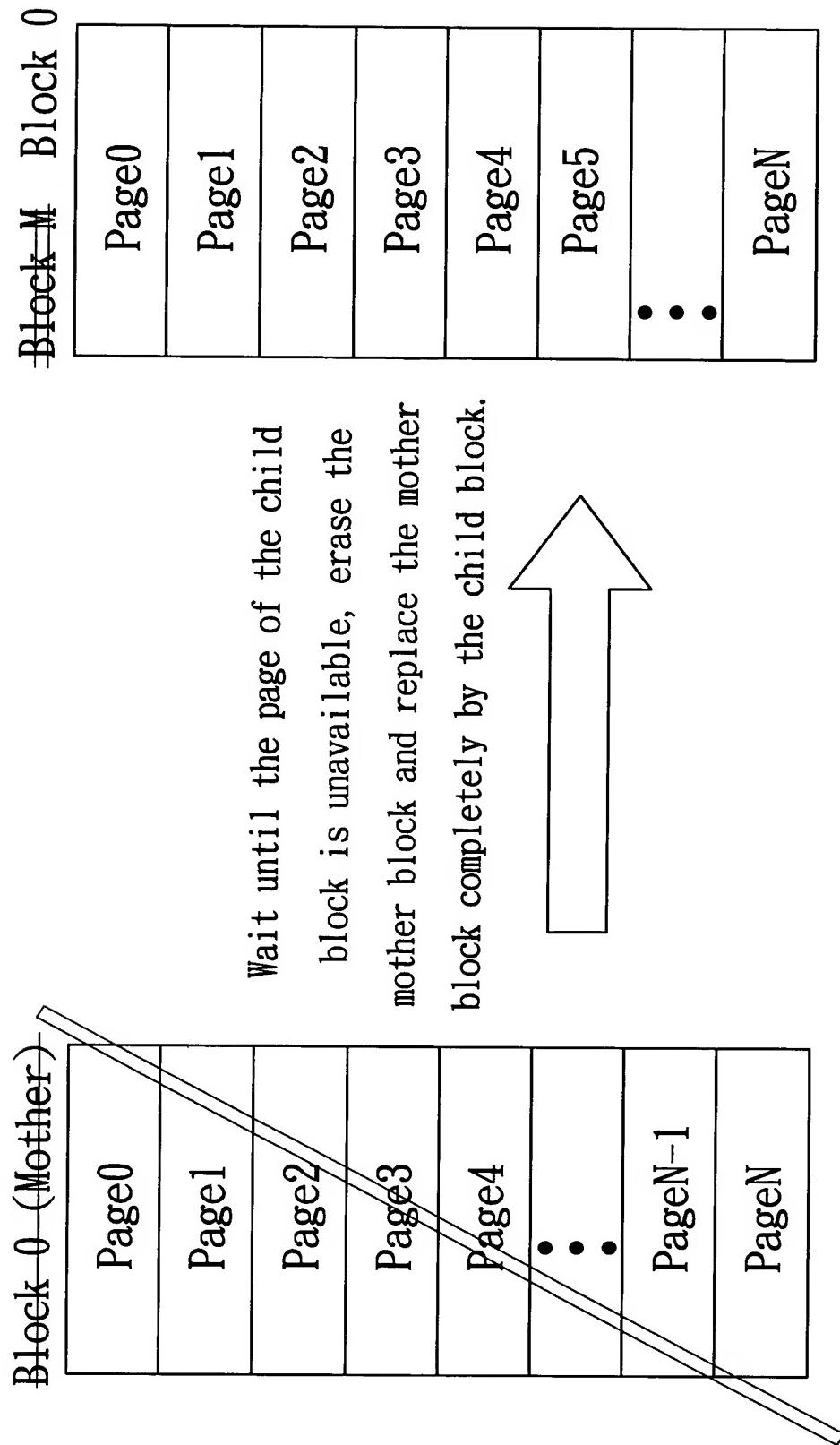


FIG. 2F

*FIG.2G*



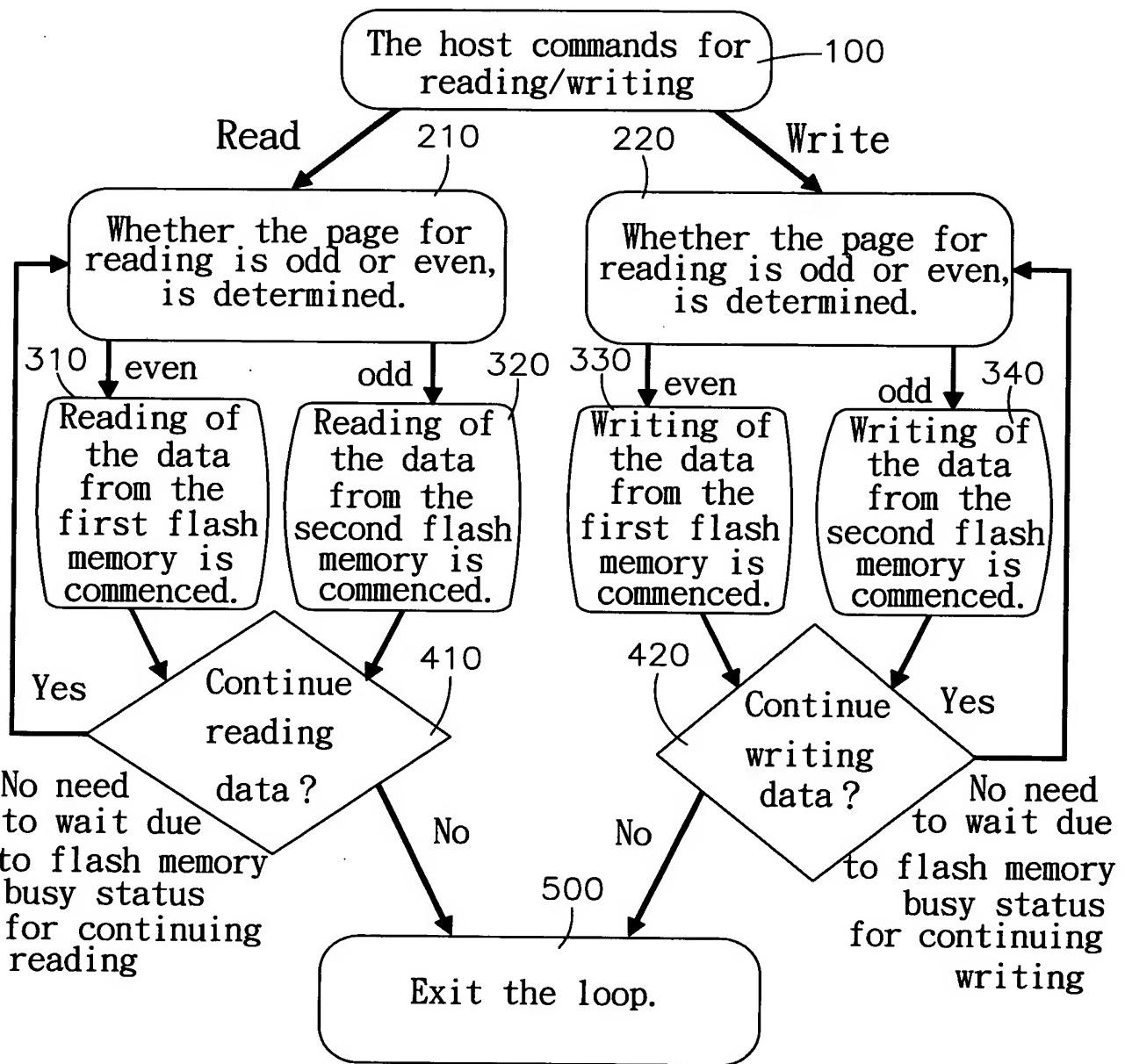
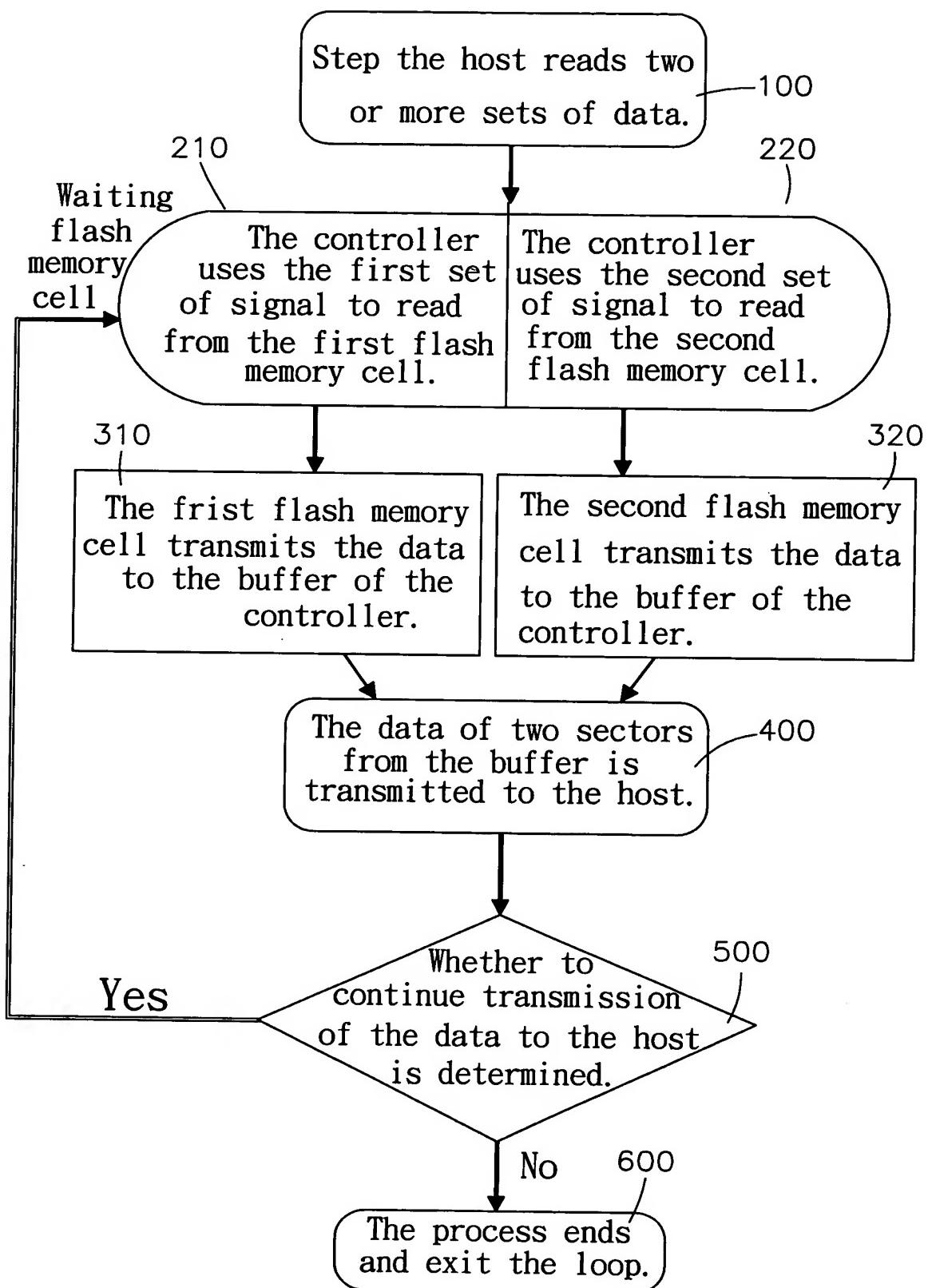
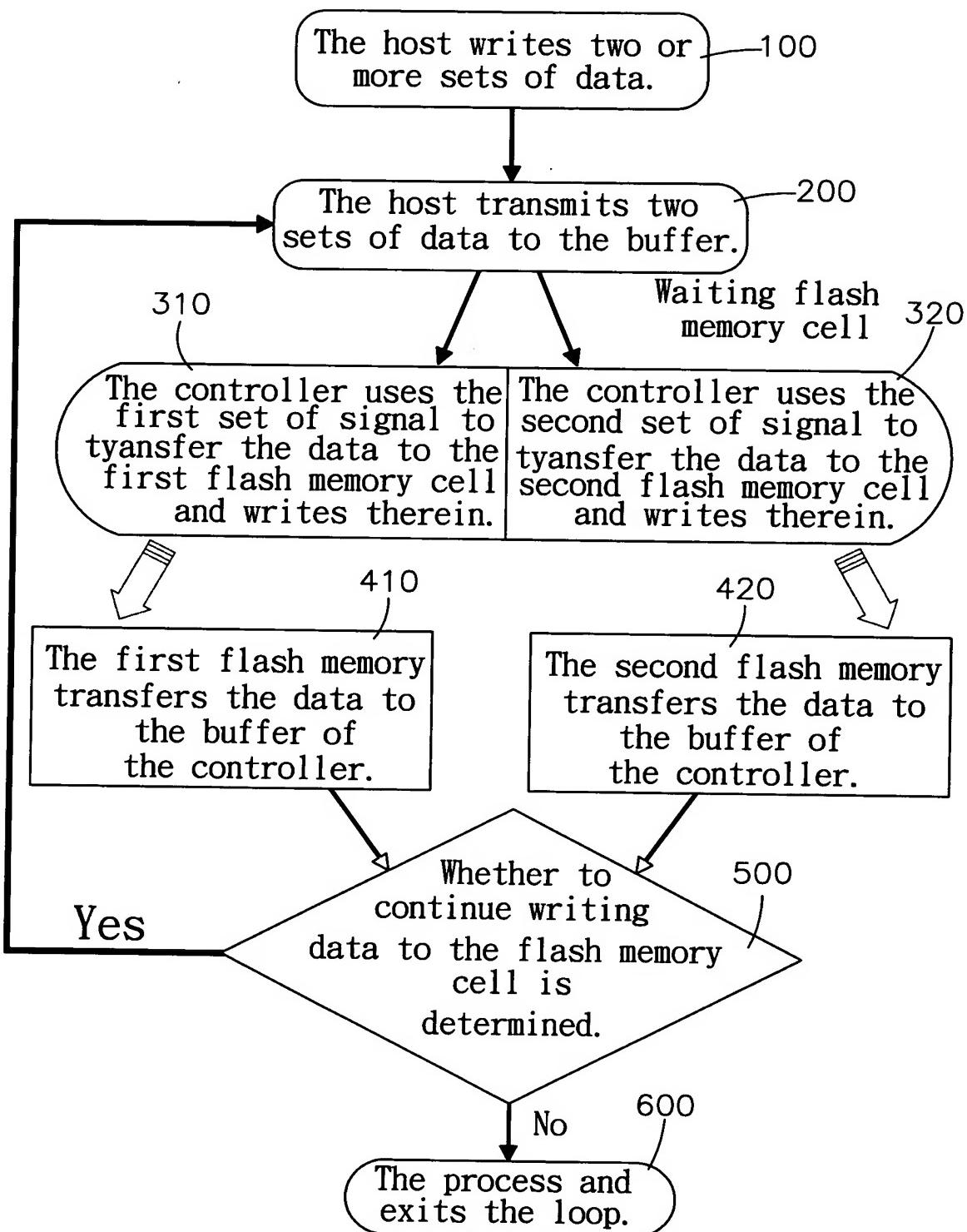


FIG. 3

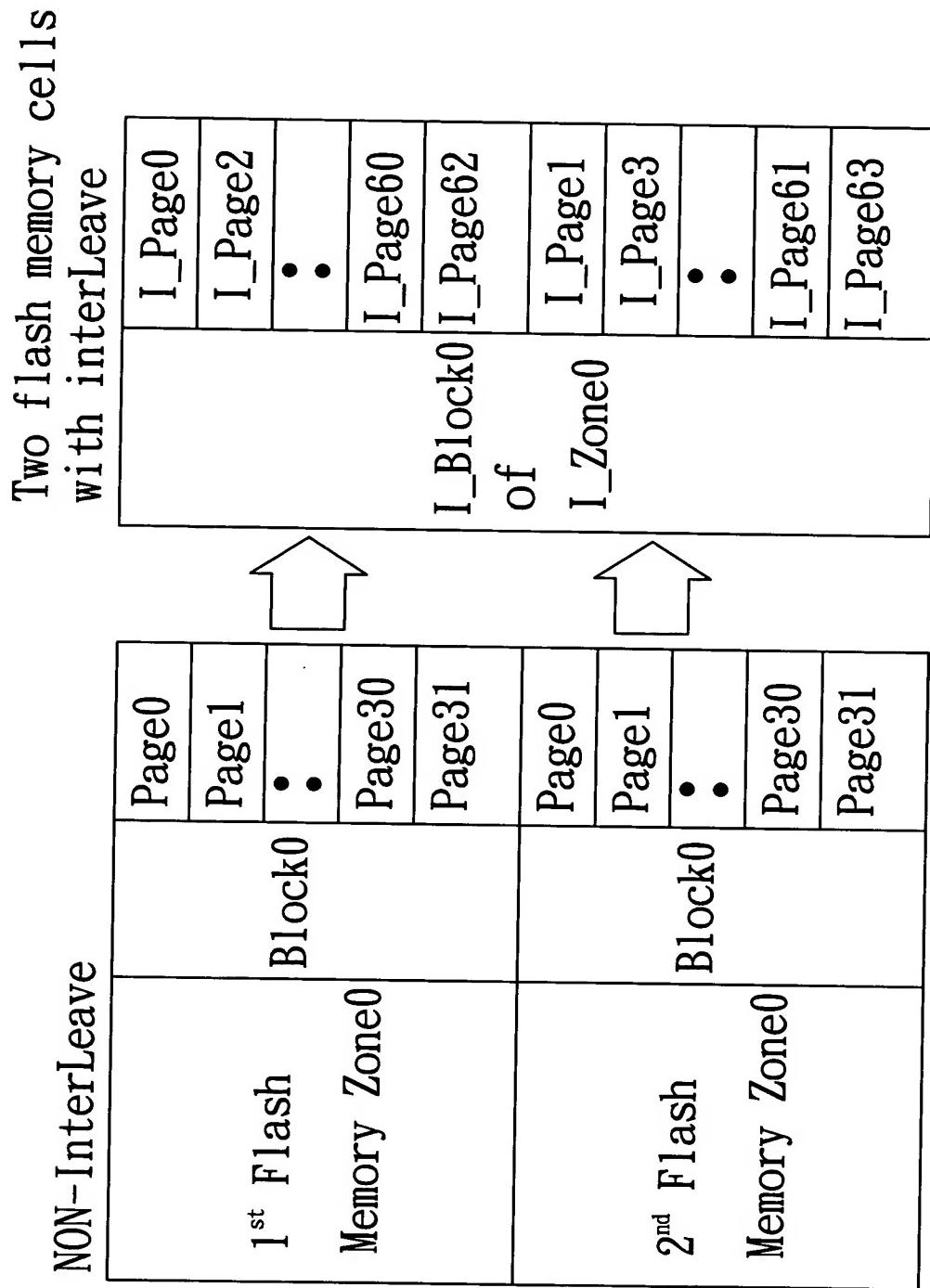


*FIG. 4A*



*FIG. 4B*

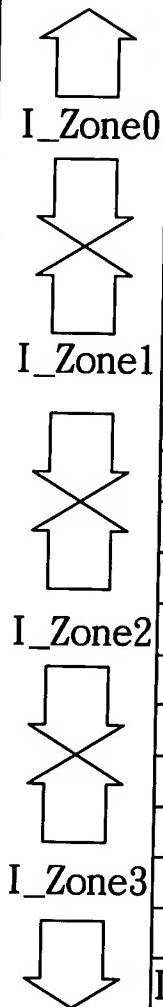
*FIG. 5A*



I_Zone0	I_Zone1	I_Zone2	I_Zone3
I_Block0	I_Block0	I_Block0	I_Block0
I_Block1	I_Block1	I_Block1	I_Block1
I_Block2	I_Block2	I_Block2	I_Block2
I_Block3	I_Block3	I_Block3	I_Block3
I_Block4	I_Block4	I_Block4	I_Block4
I_Block5	I_Block5	I_Block5	I_Block5
I_Block6	I_Block6	I_Block6	I_Block6
I_Block7	I_Block7	I_Block7	I_Block7
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
I_Block1016	I_Block1016	I_Block1016	I_Block1016
I_Block1017	I_Block1017	I_Block1017	I_Block1017
I_Block1018	I_Block1018	I_Block1018	I_Block1018
I_Block1019	I_Block1019	I_Block1019	I_Block1019
I_Block1020	I_Block1020	I_Block1020	I_Block1020
I_Block1021	I_Block1021	I_Block1021	I_Block1021
I_Block1022	I_Block1022	I_Block1022	I_Block1022
I_Block1023	I_Block1023	I_Block1023	I_Block1023

*FIG. 5B*

Plane0(I_C_Zone0)		Plane1(I_C_Zone1)	
I_C_Block0	I_Block0	I_C_Block0	I_Block1
I_C_Block1	I_Block4	I_C_Block1	I_Block5
I_C_Block2	I_Block8	I_C_Block2	I_Block9
⋮	⋮	⋮	⋮
I_C_Block255	I_Block1020	I_C_Block255	I_Block1021
I_C_Block256	I_Block0	I_C_Block256	I_Block1
I_C_Block257	I_Block4	I_C_Block257	I_Block5
I_C_Block258	I_Block8	I_C_Block258	I_Block9
⋮	⋮	⋮	⋮
I_C_Block511	I_Block1020	I_C_Block511	I_Block1021
I_C_Block512	I_Block0	I_C_Block512	I_Block1
I_C_Block513	I_Block4	I_C_Block513	I_Block5
I_C_Block514	I_Block8	I_C_Block514	I_Block9
⋮	⋮	⋮	⋮
I_C_Block767	I_Block1020	I_C_Block767	I_Block1021
I_C_Block768	I_Block0	I_C_Block768	I_Block1
I_C_Block769	I_Block4	I_C_Block769	I_Block5
I_C_Block770	I_Block8	I_C_Block770	I_Block9
⋮	⋮	⋮	⋮
I_C_Block1023	I_Block1020	I_C_Block1023	I_Block1021



*FIG. 6A*

Plane2(I\_C\_Zone2)

I_C_Block0	I_Block2
I_C_Block1	I_Block6
I_C_Block2	I_Block10
⋮	⋮
I_C_Block255	I_Block1022
I_C_Block256	I_Block2
I_C_Block257	I_Block6
I_C_Block258	I_Block10
⋮	⋮
I_C_Block511	I_Block1022
I_C_Block512	I_Block2
I_C_Block513	I_Block6
I_C_Block514	I_Block10
⋮	⋮
I_C_Block767	I_Block1022
I_C_Block768	I_Block2
I_C_Block769	I_Block6
I_C_Block770	I_Block10
⋮	⋮
I_C_Block1023	I_Block1022

Plane3(I\_C\_Zone3)

I_Zone0	↑	I_C_Block0	I_Block3
I_Zone1	↓	I_C_Block1	I_Block7
I_Zone2	↓	I_C_Block2	I_Block11
I_Zone3	↓	I_C_Block255	I_Block1023
		I_C_Block256	I_Block3
		I_C_Block257	I_Block7
		I_C_Block258	I_Block11
		⋮	⋮
		I_C_Block511	I_Block1023
		I_C_Block512	I_Block3
		I_C_Block513	I_Block7
		I_C_Block514	I_Block11
		⋮	⋮
		I_C_Block767	I_Block1023
		I_C_Block768	I_Block3
		I_C_Block769	I_Block7
		I_C_Block770	I_Block11
		⋮	⋮
		I_C_Block1023	I_Block1023

FIG. 6B

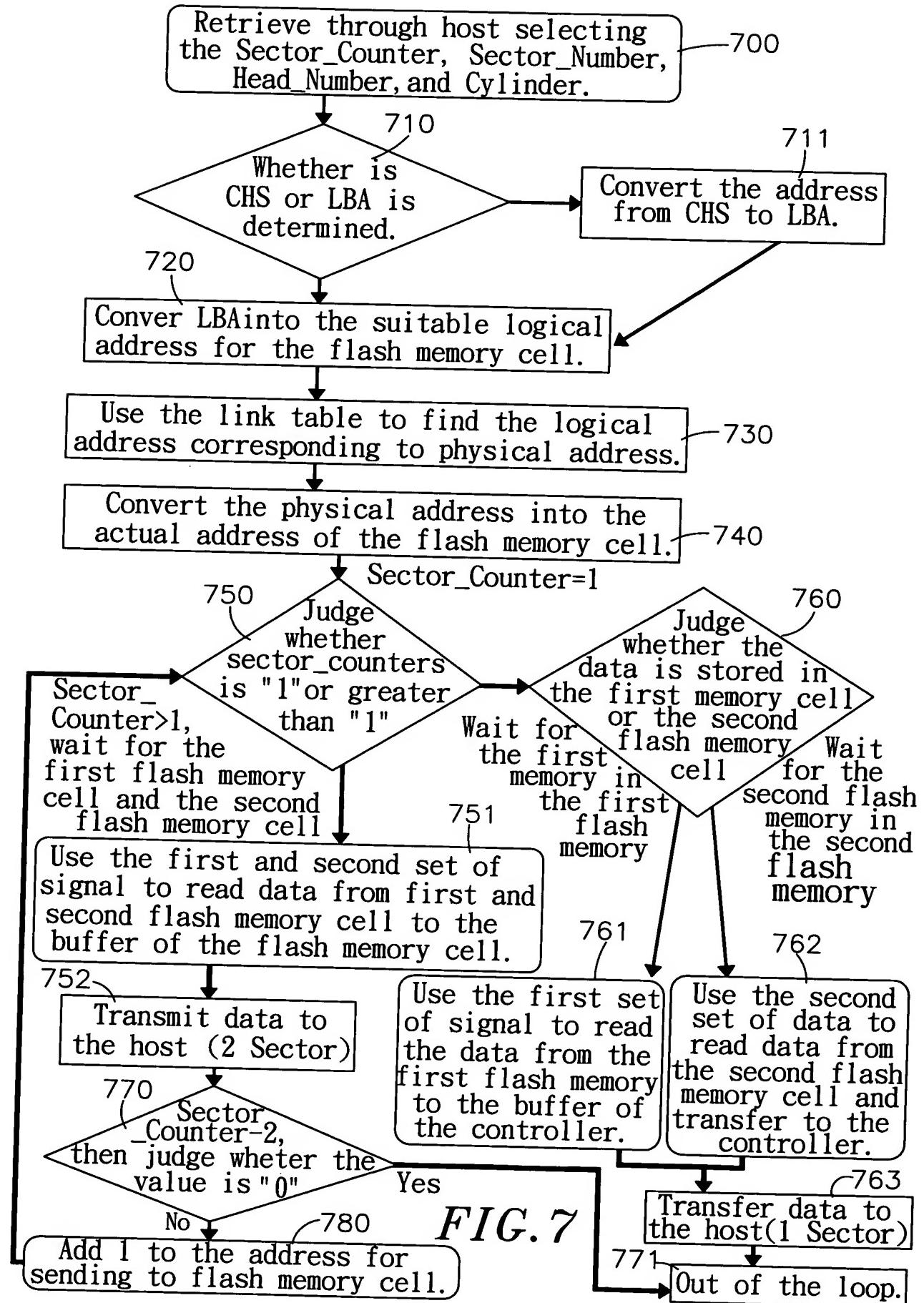
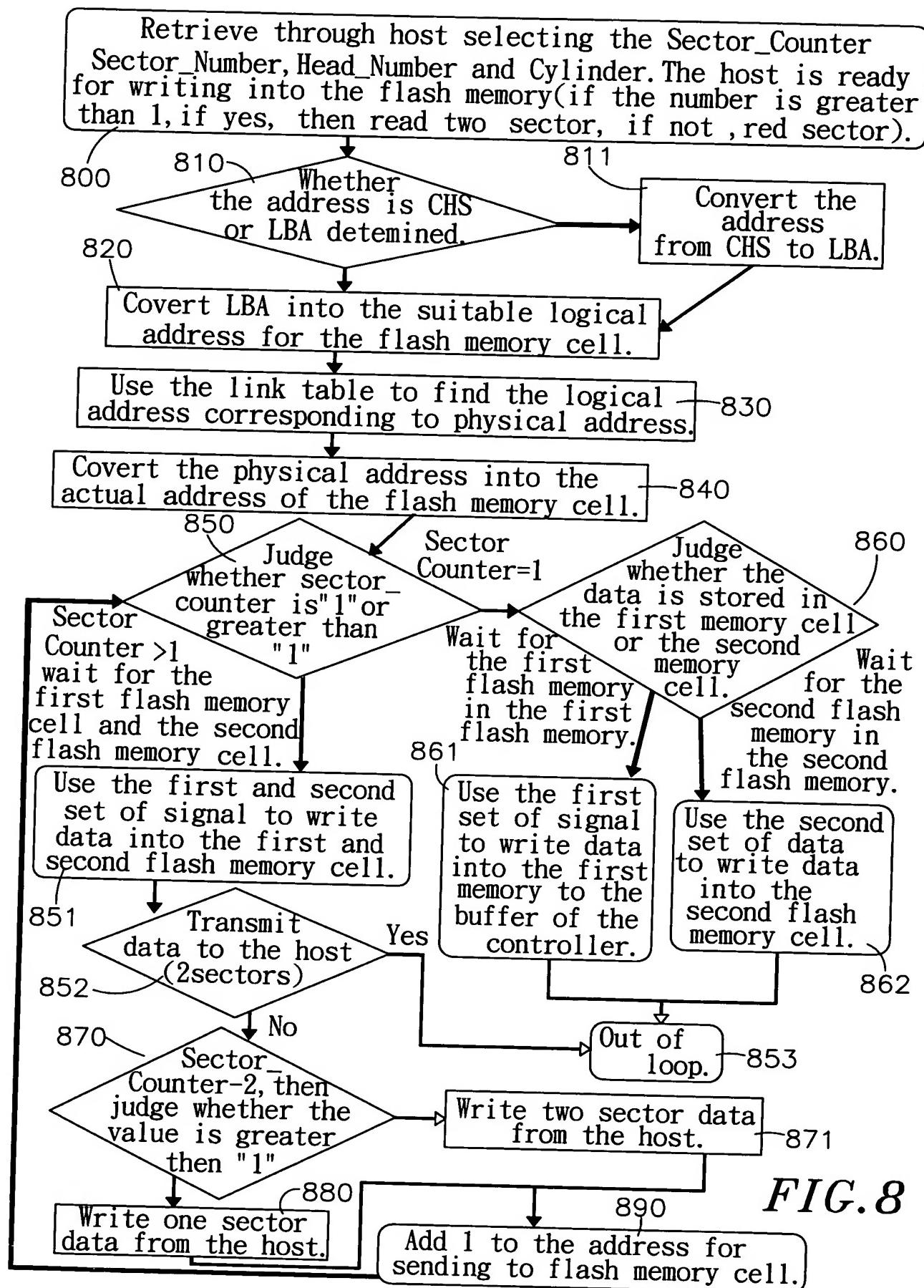


FIG. 7



**FIG.8**